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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,999	08/06/2002	Michel Fauconet	ATOCM 250	6478
23599	7590	01/25/2005	EXAMINER	
MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			ZUCKER, PAUL A	
			ART UNIT	PAPER NUMBER
			1621	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n N .

10/070,999

Applicant(s)

FAUCONET ET AL.

Examin r

Paul A. Zucker

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-- The MAILING DATE of this communication appears on the cover sheet with the c rrespondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Current Status***

1. This action is responsive to Applicants' amendment of 4 November 2004.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Applicant's cancellation of claim 15 is acknowledged.
4. Claims 1-14 and 16 are pending.
5. The objection to the specification set forth in paragraphs 1 and 3 of the previous Office Action mailed 4 August 2004 are withdrawn in response to Applicant's amendment.
6. The entry of the Abstract from the preliminary amendment is acknowledged.
7. The rejections under 35 USC § 112, second paragraph, set forth in paragraphs 4-6 of the previous Office Action mailed 4 August 2004 are withdrawn in response to Applicant's amendment and remarks.
8. The rejection under 35 USC § 103 set forth in paragraph 7 of the previous Office Action mailed 4 August 2004 is withdrawn in response to Applicant's amendment.

### ***New Rejections and Objections***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 112***

9. Claim 1-14 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. Claim 1 recites the limitation "the reaction stage" in line 26. There is insufficient antecedent basis for this limitation in the claim. Claim 1 and its dependents are therefore rendered indefinite.

***Claim Rejections - 35 USC § 103***

10. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fauconet et al (WO 98/23573 06-1998). NOTE: For purposes of clarity, the following will rely upon English equivalent Fauconet et al (US 6,281,386-B1 08-2001) corresponding citations in the WO document are given in italics.

Instantly claimed is a process for the purification of acrylic acid obtained by catalytic oxidation of propylene by countercurrent contact with a heavy, high-boiling hydrophobic liquid.

Fauconet teaches (Abstract, *abstract*) a process for purifying acrylic acid obtained by catalytic oxidation of propylene by countercurrent contact with a heavy, high-boiling hydrophobic liquid having the instantly claimed ranges for boiling point, crystallization temperature and viscosity (38°C-80°C encompassed by Fauconet's range). Fauconet teaches (Figure, *Figure*) an apparatus for the process that the Examiner considers to correspond to that instantly claimed. The Examiner considers that the instantly claimed combination of elements S1 and S2 are the functional equivalent of the combination of elements S1 and C1, respectively, of Fauconet. Fauconet further teaches (Column 7, lines 63-67; *page 14, lines 19-22*) contacting the product gas with a countercurrent water wash (direct contact) in column L1

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corresponding to the instant column C3. Fauconet teaches (Column 5, lines 11-62; *page 9, lines 5-22*) an identical genus of hydrophobic compounds with preferred crystallization temperatures as low as  $-54^{\circ}\text{C}$ . Fauconet exemplifies (Column 7, lines 63-67; *page 14, lines 19-22*) the contacting of the reaction gas mixture with hydrophobic liquid introduced at  $50^{\circ}\text{C}$  presumably at atmospheric pressure. Column S1 of Fauconet is taught (Column 6, lines 43-53, *page 11, line 28 - page 12, line 2*) to serve the same function as instantly claimed column (C1) (Cf. claim 12). Fauconet teaches partial recycle of process material at various stages of the process. The use of inhibitor during absorption is either inherent since some inhibitor is introduced during recycle of process materials or obvious since it would be desirable to suppress polymerization during absorption as well as distillation.

The precise parameters of temperature and pressure of operation for the various elements are variables that one of ordinary skill in the art would routinely optimize in the course of optimizing the process and therefore cannot confer patentability to an otherwise obvious process in the absence of unexpected results.

The difference between the process taught by Fauconet and that instantly claimed is that Fauconet does not contemplate the recovery, purification and recycling of the wash water employed in the heat exchanger or recycling of unreacted starting material and partial oxidation products such as acrolein to the oxidation reaction.

Such recycling, however, is obvious and would be motivated by the desire to both reduce the amount of waste contaminate process water which must be disposed of

and reduce the amount of fresh process water that must be supplied as well as maximize total conversion of starting materials to product. Since such recycling is routine there would have been a reasonable expectation for success.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

***Examiner's Response to Applicants' Remarks with Regard to This Rejection***

11. Applicants have presented several arguments with regard to this rejection. The Examiners responds to these below:

- a. Applicants argue that the WO not only fails to teach the recycle of water but fails to disclose the production of a purified stream of propylene and acrolein as instantly claimed. The Examiner disagrees. The WO (Fauconet) teaches (Column 7, lines 60-62) that such a flow (3) is obtained at the top of the column C1.
- b. Applicants argue that since the WO does not discuss the recycle of acrolein it does not suggest the advantage to be gained by the recycle of water in a heat exchanger. To this the Examiner responds as follows:
  - i. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., recycle of acrolein) are not recited in the rejected claim(s). Nowhere in the instant claims is the recycle of acrolein claimed. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the

claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

- ii. The recycle of heat exchanger water is obvious for the purposes of optimal resource utilization and waste management as set forth in the rejection above. Applicants' discovery of a new advantage of an otherwise obvious process does not render the process patentable.

Applicant's arguments filed 4 November 2004 have been fully considered but they are not persuasive for the reasons indicated above.

### ***Claim Objections***

- 12. Claim 1 is objected to because of the following informalities: The word "comprising" on line 4 is misspelled. Appropriate correction is required.
- 13. Claim 2 is objected to because of the following informalities: The word "in" should be inserted before the word "which" on line 2. Appropriate correction is required.
- 14. Claim 4 is objected to because of the following informalities: The word "hydrophobic" on line 2 is misspelled. Appropriate correction is required.

### ***Conclusion***

- 15. Claims 1-14 and 16 are pending. Claims 1-14 and 16 are finally rejected. Claims 1, 2 and 4 are objected to.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

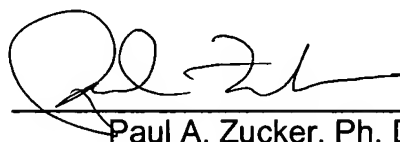
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Paul A. Zucker', is written over a horizontal line.

Paul A. Zucker, Ph. D.  
Primary Examiner  
Technology Center 1600